

## LITERARY AND MECHANICAL MODELS

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My qualification for addressing a conference of this kind are as close to absolute zero as it is possible to get, except for one thing. Nobody can have lived through three-quarters of this century without being aware of the immense number of major revolutions, political, economic, religious, and above all technological, that one has lived through during that time. So nowadays I almost invariably begin an address with personal reminiscence: this is not (yet) simple senility, but a means of providing some historical perspective on the contemporary world. For in many respects the seventy-odd years of my lifespan represent more history than two or three centuries before that.

When I was an undergraduate student at Victoria College, I had as a teacher the scholar Pelham Edgar, who in the early years of the century had gone to Johns Hopkins and done a doctoral thesis on Shelley's imagery. The bulk of the thesis was a catalogue of various images Shelley used with their contexts. Clearly it was of immense benefit for the author of the thesis to steep himself so thoroughly in Shelley's poetic vocabulary, but still practically all the thesis could have been done by an appropriately programmed computer in a matter of seconds. From Toronto I went to Oxford, where, at that time, the greatest prestige and highest status in literary scholarship belonged to editors "establishing" the texts of

standard authors. I remember hearing one senior scholar meeting another on Broad Street, and on asking him what he was doing these days, getting the answer: "Oh, collating, collating". I remember a preface to another established text in which the editor, in the tone of a triumphant St. George with a very dead dragon, thanked his wife for holding his hand while he fought out his titanic battle with a room full of bulky folios.

However, these achievements, useful as they were then, are not so highly regarded now. Such editions were routinely described as "monumental", but monuments, from Ozymandias onward, tend to crumble with the years, and the two editions I have referred to are already out of date. It was not the fault of such scholars that there were no computers then, nor am I belittling them in any degree: I am simply calling attention to the amount of difference the computer has made, even in its most elementary activities, to literary scholarship. A Canadian scholar whose field was early Tudor literature told me that after the first edition of the OED appeared, he found earlier uses of many words in his reading than any that the editors had recorded, and sent them along to the continuing committee. His contributions were received, he told me, not with expressions of gratitude but with snarls of resentment, presumably because it meant filing more hand-written slips into more pigeonholes. Concordances, again, were partly the work of what Samuel Johnson would call harmless drudges, but were also

acts of piety founded on private value-judgments. One might devote a large part of one's life to making a concordance to Chaucer or Shakespeare or the 1611 Bible or a favorite Romantic poet, but hardly to a "minor" writer. One principle stands out here: the direct mental control of a mechanical operation never guarantees accuracy, as one may see as early as Chaucer's pungent epigram on the Adam Scriveyn who transcribed his manuscripts by hand. The moral seems to be: in some areas of scholarship human intelligence is a crude and primitive form of mechanical intelligence, and anything that can be done better and faster by machinery obviously should be.

Just as societies have to go through a food-gathering stage before they enter a food-cultivating one, so there had to be a stage of gathering information about literature that might be relevant to it, even when there was still no clear idea accompanying it of what literature was or how to arrive at any structural principle that would direct research from the heart of literature itself. This period of literary scholarship, which lasted until about 1935, is sometimes called the Wissenschaft period, and its great scholars certainly did amass an awesome amount of information. Its imaginative model was the assembly line, to which each scholar "contributed" something, except that the aim was not to produce a finite object like a motor car, but an indefinitely expanding body of knowledge. However, there was still a principle of finiteness involved in the methodology. Before the subject of a doctoral

thesis would be accepted by a graduate department, there would be a check to see whether the subject "had already been done", and this is still a necessary precaution to take with some types of thesis. But the assumption behind it was "done on a Wissenschaft level". In those days what general principles of scholarship existed were philological, and I remember a graduate classmate, interested in pre-Chaucerian literature, being told by his supervisor: "Go into Middle English. Don't bother about Old English: the work there has been done". But while it was true that the philological conquest of Old English had been very impressive, it seemed to me that, apart from R. W. Chambers' book on Beowulf, hardly a word of anything that I should call mature literary criticism had yet appeared in that field. As for Middle English, I remember saying to a medieval scholar, a very decent human being but one of the dullest pedants I ever knew, how as a student I had been led to Chaucer through John Livingston Lowes' book on him. My friend said: "Well, I don't know: it's a--a--an inspirational sort of thing, isn't it?"

Whenever there is this conception of doing work on an assumed level, there arises the spectre of exhaustion: sooner or later everything essential will be done, and the humanists of the future will have nothing new to do. To revert to Lowes, I remember remarking to Kathleen Coburn once how impressed I had been by the sheer narrative excitement of the account in The Road to Xanadu of his reading through a thousand pages of

(I think) Priestley's Optics, and finding what he wanted on practically the last page. The great Coleridge scholar said: "Yes. Of course he had the wrong edition." There are still many scholars who would be frightened by the thought of a computer scanning all the editions on machine time, perhaps leaving them less able to answer the stock idiot's question: "How do you manage to get through so long a summer with nothing to do?" But the fear of exhaustion is totally illusory. Around the year 1900 there was a widespread feeling that physics was in this near-exhaustion state: physicists had constructed a mechanical model of the universe that in its overall design seemed immutable, and only a few details remained to be worked out. A year or so later along came the first work of Planck and Einstein, and there was no more talk of physics being exhausted. The same principle applies to the humanities. As soon as we seem to approach the horizon of what can be done with Wissenschaft philological criticism, or any other kind, the horizon vanishes and a new world spreads out.

I have to turn personal for a short time now, because I am coming to the period when, with the Anatomy of Criticism, I began to enter the critical scene myself. At that time the limitations of Wissenschaft philological criticism were apparent on all sides, and the first efforts to squirm out from under it were beginning. One of these was the judicial criticism of the "Scrutinies" group headed by Leavis, which talked about a "great tradition" and measured other writers by

it. The moral energy exerted in preferring one writer to another seemed to me misapplied, and only the sense of the seriousness of literature, and the urgency of establishing its function in society, seemed to me to make this approach a positive contribution to criticism and save it from being merely paranoid. Another was the "ambiguity" or close reading movement fostered by Empson and others, which was based on the fact that poetic and imaginative language was different in texture from the texture of most prose, certainly of forms of applied or extra-literary prose.

As I saw it around 1950, there was still no critical structure that could prevent criticism from being regarded as parasitic on literary practice, or from being sucked into some ideological vortex like Marxism or Freudianism or (then) Thomism. There was however one form of Wissenschaft scholarship that seemed to me to open a wider horizon: this was the scholarship applied to ballads and folk tales, where themes and motifs could be identified and indexed. It seemed to me that the difference between this kind of popular literature and the whole of what we ordinarily call literature was a difference in degree of complexity but not a difference in kind. In other words, the conventions, genres, and what I called archetypes or recurring units of literature could form the basis for a new and comprehensive perspective on literature. It would give a shape to the history of literature, which was then only a history of everything in

general plus a catalogue of biographical and publication dates; it would expand the arbitrary division of literature into the different languages to a genuinely interdisciplinary study; it would establish context as the basis of literary meaning.

I also, in my introduction, used the word "scientific", by which I meant essentially progressive. My structural vision of criticism was very generously received, but there was also a revival of the old fears about exhaustion. One critic even asked me if I proposed to lock up all critics in that god-damned jail, where they would do nothing but clean out its cells. Most of this misunderstanding, I now see, came from the word "scientific," which I used because my view was the opposite of the one assumed by the hostile question. I wanted criticism set free to do something with a direction to it, instead of fighting civil wars on judgmental grounds, or disintegrating a text into ambiguous units, or following the course of a history which had nothing to do with the actual history of literature. Not that I wanted to abolish these activities, merely to prevent them from becoming dead ends. I have never been impressed by the "hard" and "soft" metaphors applied to science, nor did I care two pins that the conception of science I invoked was as soft as a marshmallow. But such conceptions as "software programming" and "computer modelling" were as yet unknown, and if I were writing such an introduction today I should probably pay a good deal of attention to them and talk less about science. Ballads and folk tales are an

obvious area for computer assistance, and an approach to literature through its recurring conventional units might be equally so. Again, I had always realized that the basis for the prestige of judicial and evaluative criticism was social snobbery: for it, criticism was a gentlemanly, and therefore an unsystematic, occupation. But this was only an intuitive hunch, which the coming of computers has done much to clarify.

Apart from the analogies of ballad and folklore scholarship, I was also influenced by the twentieth-century fluidity of media, in which a story might begin as a magazine serial, then become a book, and then a film. I remember the shock of picking up a copy of The Brothers Karamazov and seeing it described as "the book of the film", but I also realized that certain verbal cores, of the kind I usually called archetypes, were constants throughout the metamorphoses. The variety of media in fact was what made the conventions and genres I was interested in stand out in such bold relief. It was this that made it impossible for me to go along with McLuhan's "the medium is the message" axiom, despite my general sympathy for what McLuhan was trying to do. McLuhan's formula was essentially an application of the Aristotelian form-content unity: he says, for example, that the form of one medium is the content of a later medium. I could see the identity of form and content: the content of a picture, for example, is the form of that picture, as long as we are talking about it as a picture and not as a representation of something else. I

could also see the essential identity of content and "message". But the McLuhan aphorism also implied an identity of form and medium, and that I could not buy. A medium is precisely that, a vehicle or means of transmission, and what is transmitted are the real forms. The form of a Mozart quartet is not affected by whether it is heard in a concert hall or over the radio or read in a score, though there would be psychological variants in reacting to it, of the kind that McLuhan made so much of. The real forms are not media but verbal, pictorial, perhaps even musical, units that have been there since the Stone Age.

There is now, of course, a large number of critical "schools" today concerned with the humanities. What I have called the Wissenschaft or philological school grew up in pre-computer days: it would be absurd to regard it as obsolete merely because it has been around for some time, but the necessity of supplementing it with other approaches is fairly obvious. Most of the schools that have appeared since the Anatomy of Criticism have their centre of gravity in linguistics or semiotics, or else represent some ideological interest, religious or psychological or politically radical or feminist or whatever. I think that as long as all these critical perspectives are thought of as competing schools, the whole critical enterprise becomes a Tower of Babel, a vast structure largely abandoned, so far as it is a cooperative effort, because its builders have become unintelligible not only to the general public but increasingly to one another. It

is on the whole fortunate that they have, because most such schools contain a hard core of imperialists anxious to subordinate all the others.

I think here of a friend of mine who, about fifty years ago, started an academic career in philosophy. At his first job the department chairman called all the new recruits together and wrote on a blackboard a list of nineteen "isms", which they were required to teach to their students. My friend felt that philosophy was a genuine subject but that these isms were not, so he did the philosophical thing: resigned and joined an advertising firm. Critical schools, like philosophical ones, are better thought of as programming models. The importance of the computer is in bringing them down to manageable scope, so that their essential assumptions can be worked through in a reasonable time before they modulate into or merge with something else. If it matters, the Anatomy of Criticism was written just as the Babel clamor was beginning, hence it has come to be regarded as a document of a "mythological school", and its schematic overview taken to be a "system", which is a schematism petrified into dogma. Those who overlook the sentence in the introduction about the schematism being a scaffolding to be knocked away when the building is in better shape have totally misunderstood both the book and the spirit in which it was written.

## II

Humanists are often said to be "Luddites" or machine-breakers, resisting the machine as much as possible. C. P. Snow even cites 1984 as an example of the humanist wish that a technological future should not exist, though I should think any sane man would wish that that future should not exist. But resistance to mechanical developments is a matter of lifetime habits combined with age: it has nothing to do with whether one is a humanist or not. At Oxford I picked up a rumor that Sir James Frazer, author of The Golden Bough (twelve volumes), Totemism and Exogamy (six volumes), Folklore in the Old Testament (three volumes), an edition of Pausanias (two volumes), and a whole shelf of other books, had recently, in his last years, switched to a fountain pen. I myself have been a fast touch typist since the age of sixteen, am also a very laborious and endlessly revising writer, and hence I tend to resent the word processor with its itch to jump around and perform miracles, and stay with my typewriter. But younger people tell me how they can work for hours without fatigue with a word processor, and as for still younger people, there is no holding them. Of course in so experimental a field some developments are certain to be a bust: one thinks of how badly boards of education got stung on the teaching machines of the fifties, with their inept Pavlovian programming as transmitted

by B. F. Skinner and others. The translating machines of the same period, again, have developed their own folklore, of which the most famous story is the rendering of "out of sight, out of mind" as "invisible lunatic".

The Luddite thesis overlooks the fact that three of the most seminal mechanical inventions ever devised, the alphabet, the printing press, and the book, have been largely in humanist hands for centuries. The prestige of humanists in the past came largely from the fact that they inhabited an infinitely more efficient technological world than most of their contemporaries. It is true that today they are sometimes confused about the technical possibilities opening up in front of them, though hardly more so than the rest of the human race, and they may also be put off by over-enthusiastic forecasting. I often find that when I read books about the technology available in the near future, or available even now, the author's eyes are starry while mine are still glazed. One such book, written around 1970, predicted quite astonishing technical developments for the 1980s, almost none of which occurred. Everything the author predicted may eventually come true, but he did not allow for the normal rate of social metabolism. It is a frequent illusion that every change that is technically possible will take place at once.

At present, in the humanities, computers are doing an immense amount of word-crunching, and could easily do much more. Concordances have multiplied; dictionaries are no longer

assembled from hand-written slips; in the study of literature the prospect opens up of having the entire verbal corpus of any given literature placed within easy reach. Those who remember the pre-computer age are reminded at every turn of the changes new technologies have made. A few days ago a good deal of material landed on my desk from a spelling reform enthusiast. My mind went back forty years to the time when supporters of "anglic" and similar schemes predicted that English would become a world language overnight if its spelling were made a phonetic as Italian. I also thought how quaint this interest looked now, when not only has English become a world language anyway, in spite of its spelling anomalies, but when we have computers with entire dictionaries built into them.

All this is hardly news to the present audience, but some implications of it may be less familiar. When the historian Michel Foucault wrote his book Les mots et les choses, he gave it the prophetic subtitle: "An essay on the archaeology of knowledge". The word "archaeology" seems to me deeply significant here. Archaeology emerged as an essential basis of historical research, especially for the ancient period, about two centuries ago, and its first efforts were in the general area of treasure hunts, or at least the recovery of startling artefacts. It has now become a patient soil-sifting and strata-separating enterprise, with the aim of reconstructing the continuity of the past: that is, of filling in the gaps in society's record of its own earlier life. Society, like the

individual, becomes senile in proportion as it loses its continuous memory. So the humanist's preoccupation with the past is concerned with reconstructing that past, not, as in the "two cultures" thesis, with nostalgia for it.

My own technological fantasies are very limited. I should hope that within a few years the most mind-numbing of humanist activities, the marking of undergraduate essays, would disappear as the essays were fed into a machine that would not guess at the mark, would not be affected by prejudice or exasperation, and would not respond to the protests of failed students. I should also hope to see the end of the conception of "productive scholar", with its nineteenth-century industrial overtones, and "creative scholar" put in its place. In the future, perhaps, someone proposing a doctoral thesis, let us say on the Adonis myth in Milton or metaphors of nature in Wordsworth or color imagery in Tennyson, would look to see whether it had already been done, and discover that there were in existence 9842 theses on precisely that topic, of which 7235 were in Japanese. The department would nod its collective head and remark that any thesis that had been written as often as that must be an excellent one. The thesis would add nothing to knowledge, but nobody would read it anyway, and if there were something in it that anyone could conceivably use it could be made available by other means. So the crazy chain of thesis, thesis rewritten as book, book published, book bought by libraries, book added to an already groaning bibliography,

would be broken. The computer would play only a minor role in reducing this academic counterpart of the national deficit, but its role would be crucial.

Such a reverie need not be taken with desperate seriousness, but it contains a genuine point, and the analogy of learning a language may help to explain what that point is. Despite the teaching machines, computers could help a great deal in the learning of language. But no machine will learn the language for us: we have to digest all those idioms and irregular verbs ourselves. In this learning process we are not contributing to any body of knowledge except our own; yet there is normally an advance in fluency and competence. I think of language partly because it is so prolific a source of guilt feelings among humanists: we never know enough languages, and the languages we do know we never know well enough. Literature itself, especially poetry, is also written in a language of its own, the language of myth and metaphor, which graduate students pick up piecemeal by luck and instinct but are never systematically taught. The kind of thesis I have spoken of would be a pure academic exercise and not, in the Wissenschaft formula, "a contribution to knowledge worthy of publication". But it would also be an immersion in the thought and vocabulary of a great poet, which would teach the author the language of poetry in a way analogous to the learning of composition through the study of models on a more elementary level. I began this talk with a reference to Edgar's Shelley thesis, which I said could be done

now by a computer very quickly, but which undoubtedly represented an experience of great value to Edgar himself. I should like to see the doctoral theses of the future, also, documents that have educated the author without driving the rest of the scholarly world out of its mind.

### III

It is a cliché to say that computers can do only what they have been programmed to do. But a few decades ago biology came up with the DNA molecule and the genetic code, which showed that much the same principle applies to the human organism. For example, there have been experiments in ESP and telepathy which may have established the fact that some human beings possess such powers. They certainly established the fact that the majority of people either do not possess them at all or possess them in an erratic, unreliable, and very largely useless form. Perhaps our remote ancestors possessed them when they had more survival value and they have merely atrophied since; perhaps strenuous and unremitting efforts of meditation training in yoga, Zen or mystical schools could awaken these and many other dormant mental abilities. But the simplest way of looking at this question is to say that human evolutionary history has produced a unique but still limited and finite being, and that there are many theoretically conceivable powers for which our nervous wiring, so to speak, is not well adapted.

What we do have is the capacity to construct machinery that can compensate for what is impossible for the human organism such as the ability to explore the electromagnetic spectrum far beyond the color range or report on what is going on on the planet Neptune. Telepathy and the like may exist in human minds, but it seems to be a poor thing there compared to what the technology of telephones and wireless have been providing for a century.

The question of whether computers are actually conscious or thinking beings is a pseudo-issue. There is a pernicious tendency in the human mind to externalize its own inventions, pervert them into symbols of objective mastery over us by alien forces. The wheel, for example, was perverted into a symbolic wheel of fate or fortune, a remorseless cycle carrying us helplessly around with it. As soon as human being learned to write books and keep records, there arose the nightmare of being confronted after death by a book containing the record of our misdeeds written by a recording angel. The same dreary superstition turns up with computers. In Samuel Butler's Erewhon written in 1870, the imaginary society he calls Erewhon once had a flourishing technological civilization, but on the urging of a prophet who might fairly be called a Luddite, they destroyed it and refused to allow any more mechanical progress. The argument was that machines were developing so quickly that the human being was certain to become very shortly "an affectionate machine-tickling aphid", a parasite useful only

for feeding and grooming machinery. Some writers talk about the computers of the future in very similar terms, predicting the imminent arrival of super-intelligent mechanisms that will --well, I'm not sure what: you write the book: after fifty years of teaching I feel that I know something about the strength of the human impulse to say "enough is enough". And when a silicon microchip begins to take on the proportions of a world-conquering Messiah, it is perhaps time to say "enough".

What makes human beings unique in the scheme of things is not simple consciousness, but consciousness directed by an autonomous will. Machines extend human capacities in all directions including mental ones, but no machine has yet appeared that has any will of its own to exert its power, that is independent of being plugged in or turned on. Computers look mysterious and spooky to some people because of the Cartesian fallacy, which survives as an unconscious assumption, that the human being is made up of two separate components, a mind (or soul or whatever) and a physical body which the mind inhabits, and which by itself is a mechanism. So a machine that runs faster than our legs, like an automobile, arouses no emotional disturbance, as it belongs to the mechanical body-world, but a machine that can do what only the mind is traditionally supposed to be able to do may seem to threaten our supremacy as lords of the earth. As soon as we put such an assumption into words we can see how absurd it is.

Destruction is the mother of invention, and tyranny its

stepfather. Technological development has been largely prompted, in every age, by military conflict, and further advance is often frozen by the determination of an ascendant class to preserve its ascendancy. Consciousness is the critic of the directing will, and when the will does not pay attention to its criticisms human ingenuity is put to very wrong uses. With the coming of the Industrial Revolution a different but related social element entered the scene. Alluding for the last time to the "two cultures" polemic, it is true that many nineteenth-century literary figures, Blake, Dickens, Carlyle, Ruskin, Morris, attacked and ridiculed the material civilization of their time on the ground of its ugliness and filth. But they were not making a mere shudder of refined distaste: they saw in the physical ugliness of their time the sign of a far more sinister spiritual ugliness. Ruskin and Morris in particular denounced the drudgery and misery caused by the division of labour in factories into intolerably monotonous tasks, and emphasized that bad or mindless design in mass-produced goods was invariably connected with exploitation.

Marx of course had a far more comprehensive vision of all this, but the aesthetic criteria were distinctively humanist ones. And while much of the squalor of working-class nineteenth-century life may have been inevitable, given its coal-based economy, the humanist's opposition to it was in some respects even more deeply prophetic than the Marxist one. Some of it has developed into the "green" political parties of

today, which are growing rapidly at a time when Marxism seems to be entering a decline. The main principle of the humanist case was: humanity can be genuinely civilized only when it loves and cherishes nature. The exploiting of nature is, in the long run, just as wrong and evil as the exploiting of one's fellowmen. This is not really a Marxist doctrine, as Marxism was concerned primarily to transfer industrial capitalism to other controlling hands, and to alter the priorities of production rather than the process itself. It paid as little attention to environmental factors as laissez-faire capitalism, so far as the exploiting of nature was concerned. At present, with the apparent weakening of the adversary situation between the two systems, a more centrally conscious attitude is emerging. At least we now know that graphite fires and oil spills are major disasters, not minor incidents to be hushed up by whatever authority gets there first.

In the development of computer technology there are two possibly reassuring features. It is a relatively clean technology, and it seems to have a curious kind of democratic dynamic built into it. Each advance, so far, seems to have made the mechanism involved simpler, cheaper, and more available to more people. Obviously this can hardly be the whole story, and there could well be "Big Brother" features in it that would make Orwell's "telescreen" look very rudimentary as a means of paralyzing all moves toward freedom. But I am concerned here with scholarship in the humanities, which in

itself cannot enslave anyone. Besides, whenever a new instrument of production emerges in society, there are both opportunities to be taken advantage of and dangers of reinforcing existing or future power-structures. Everybody likes to warn of the dangers; some, including myself, tend to be more attracted to the opportunities. As for how these opportunities may be extended and applied in our own field, I come up against the blank wall of my own technical ignorance once again, and must turn the next chapter over to you.